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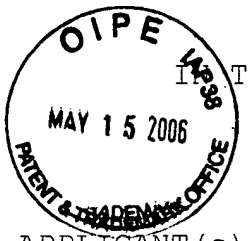

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

(A) IDENTIFICATION

APPLICANT(s):	Kalliokulju et al.		
SERIAL NO.:	09/757,913	ART UNIT:	2145
FILING DATE:	01/10/2001	EXAMINER:	Chodhury, Azizul Q.
TITLE:	RELOCATING CONTEXT INFORMATION IN HEADER COMPRESSION		
ATTORNEY DOCKET NO.:	460-010088-US (PAR)		

Board of Patent Appeals and Interferences
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

APPEALANT'S BRIEF

(37 C.F.R. §1.192)

I. INTRODUCTION

This is an appeal from the final rejection of the claims in the above-identified application. A Notice of Appeal was mailed on February 6, 2006 along with a Pre-Appeal Brief Request For Review. A Notice of Decision from Pre-Appeal Brief Review was mailed April 14, 2006.

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(C) REAL PARTY INTEREST

This real party interest in this Appeal is:

Nokia Mobile Phones, Ltd.

(D) RELATED APPEALS AND INTERFERENCES

None

(E) STATUS OF CLAIMS

Claims 1-21 are pending in the application.

Claims 1-21 have been finally rejected.

The claims on appeal are 1-21.

(F) STATUS OF AMENDMENTS

There were no amendments filed after final rejection.

(G) SUMMARY OF CLAIMED SUBJECT MATTER

The invention defined by the independent claims is:

1. A method of relocating the header compression context in a packet network (Fig. 3, UTRAN, CN; Page 16, lines 8-12) which transmits packets having compressed headers (page 5, line 35), said method comprising:

establishing a connection (page 16, line 30,-page 17, line 3) between a mobile terminal (page 16, lines 10-11; Figure 3, UE) and a first network entity (Figure 3, RNC) including storing context information used with compression and decompression of the headers (page 18, line 36,-page 19, line 4) of the packets at the mobile terminal and the first network entity;

stopping the context information updating in the mobile terminal and in the first network entity (page 19, lines 29-30);

taking a snapshot of the compression and decompression context information in the first network entity including storing said context information snapshot in the first network entity (page 19, lines 33-36; page 20, lines 31-35); and

changing (page 11, lines 7-21) the connection between the first network entity and the mobile terminal to a connection between the mobile terminal and a second network entity including transferring the context information snapshot stored by the first network entity to the second network entity (page 21, lines 5-6) which is stored by the second network entity (page 5, line 25) as the context information of the second network entity and using the stored context information at the mobile terminal and

the second network entity for compression and decompression of the headers of the packets (page 19, lines 21-22).

12. A packet network (Figure 3, UE, UTRAN, CN; page 16, lines 8-12) in which packets having compressed headers are transmitted between a mobile terminal and (Figure 3, UE; page 16, lines 10 and 11) network entities (Figure 3, RNC), said network comprising:

a connection (page 16, line 30,-page 17, line 3) is arranged to established between a mobile terminal and a first network entity;

context information used with compression and decompression of the headers (page 18, line 36,-page 19, line 4) of the packets is arranged to be stored at the mobile terminal and the first network entity;

the context information updating in the mobile terminal and in the first network entity is arranged to be stopped (page 19, lines 29-30);

a snapshot of the compression and decompression context information is arranged to be taken at and stored in the first network entity (page 19, lines 33-36; page 20, lines 31-38);

the connection between the first network entity and the mobile terminal is arranged to be changed (page 11, lines 7-21) to a connection between the mobile terminal and a second network entity (page 21, lines 5-6), whereby the context information snapshot stored by the first network entity is arranged to be transmitted to and stored in the second network entity (page 5, line 25) as the context information of the second network

entity; and

the stored context information at the mobile terminal and the second network entity is arranged to be used for compression and decompression of the headers of the packets (page 19, lines 21-22).

The following dependent claims are being separately argued:

2. A method in accordance with claim 1 wherein:

said context information updating is stopped by disabling the mobile terminal and the first network entity decompressors from sending acknowledgements to the compressor of the opposite side (page 4, lines 16-19; page 11, lines 26-29; page 20, lines 17-24).

3. A method in accordance with claim 1 wherein:

said context information updating is stopped by stopping the mobile terminal to compress and transmit uplink data and stopping the first network entity to compress and transmit downlink data (page 23, lines 23-28).

4. A method in accordance with claim 3 wherein:

said taking a snapshot of the compression and decompression context information in the first network entity is delayed until said transmitted uplink data and downlink data has been received and decompressed (page 22, lines 2-6).

5. A method in accordance with claim 1 wherein:

said context information updating is stopped by discarding in the first network entity compression/ decompression acknowledgements from the mobile terminal (page 22, lines 28-34).

6. A method in accordance with claim 1 wherein:

said context information updating is stopped by disabling in the first network entity to send compression/ decompression acknowledgements to the mobile terminal (page 23, lines 23-28).

7. A method in accordance with claim 5 wherein:

sending a context update request from the first network entity to the second network entity, in response to a detection of a context update request sent by the mobile terminal in the first network entity (page 24, lines 17-23); and

sending the first packet from the second network entity to the mobile terminal as a packet containing said context update request (page 24, lines 25-29).

8. A method in accordance with claim 5 wherein:

sending a context update request from the first network entity to the second network entity, in response to a detection of out-of-synchronism of the context information in the first network entity (page 24, lines 30-33); and

sending the first packet from the second network entity to the mobile terminal as a packet containing said context update request (page 24, lines 33-36).

9. A method in accordance with claim 1 wherein:

transferring the context information snapshot stored by the first network entity to the second network entity before changing the connection between the first network entity and the mobile terminal to a connection between the mobile terminal and a second network entity (page 11, lines 32-34).

10. A method in accordance with claim 1 wherein:

said method is used in accordance with Robust Header Compression (ROHC) implemented in a UMTS system (page 11, line 17; page 15, line 31).

11. A method in accordance with claim 10 wherein:

performing said relocation overlapping with serving radio network subsystem (SRNS) relocation (page 15, line 34).

13. A packet network in accordance with claim 12 wherein:

said context information updating is arranged to be stopped by disabling the mobile terminal and the first network entity decompressors from sending acknowledgements to the compressor of the opposite side (page 4, lines 16-19; page 11, lines 26-29; page 20, lines 17-34).

14. A packet network in accordance with claim 12 wherein:

said context information updating is arranged to be stopped by stopping the mobile terminal to compress and transmit uplink data and stopping the first network entity to compress and transmit downlink data (page 23, lines 23-28).

15. A packet network in accordance with claim 14 wherein:

said taking a snapshot of the compression and decompression context information in the first network entity is arranged to be delayed until said transmitted uplink data and downlink data has been received and decompressed (page 22, lines 2-6).

16. A packet network in accordance with claim 12 wherein:

said context information updating is arranged to be stopped by discarding in the first network entity compression/decompression acknowledgements from the mobile (page 22, lines 28-24).

17. A packet network in accordance with claim 12 wherein:

said context information updating is arranged to be stopped by disabling in the first network entity to send compression/decompression acknowledgements to the mobile terminal (page 23, lines 23-28).

18. A packet network in accordance with claim 16 wherein:

a context update request is arranged to be sent from the first network entity to the second network entity, in response to a detection of a context update request sent by the mobile terminal in the first network entity (page 24, lines 17-23);

the first packet is arranged to be sent from the second network entity to the mobile terminal as a packet containing said context update request (page 24, lines 25-29).

19. A packet network in accordance with claim 16 wherein:

a context update is arranged to be sent request from the first network entity to the second network entity, in response to a detection of out-of-synchronism of the context information in the first network entity (page 24, lines 5-16); and

the first packet is arranged to be sent from the second network entity to the mobile terminal as a packet containing said context update request (page 24, lines 33-36).

20. A packet network in accordance with claim 12 wherein:

the context information snapshot stored by the first network entity is arranged to be transferred to the second network entity before changing the connection between the first network entity and the mobile terminal to a connection between the mobile terminal and a second network entity (page 11, line 17; page 15, line 31).

21. A packet network in accordance with claim 12 wherein:

said packet network is a UMTS system, wherein Robust Header Compression (ROHC) is implemented (page 11, line 17; page 15, line 31).

The present invention is a packet network and a method of relocating the header compression context in the packet network which transmits packets having compressed headers. A connection is established between a mobile terminal and a first network entity and context information used with compression and decompression of the headers of the packets is stored at the mobile terminal and the first network entity. The context information updating is stopped in the mobile terminal and in the first network entity, and after that, a snapshot of the

compression and decompression context is taken and stored in the first network entity. The connection between the first network entity and the mobile terminal is changed to a connection between the mobile terminal and a second network entity. The context information snapshot stored by the first network entity is transferred to the second network entity to be stored therein as the context information of the second network entity. The stored context information at the mobile terminal and the second network entity is then used for compression and decompression of the headers of the packets. Because the context information has not changed during the relocation process, the compressor of the mobile terminal and the decompressor of the new network entity are automatically in synchronism, and the data transfer can be continued thereby reducing the time required.

(H) GROUNDS FOR REJECTION

Whether claims 1-21 are unpatenable under 35 U.S.C. 103(a) as being obvious over Chen in view of Maggenti.

(I) ARGUMENT

(a) Claims 1 and 12

Chen discloses a method for reducing a synchronization delay between a header compressor and a header decompressor, when transmission interruptions, e.g., a handover, occur in wireless communication. When a transmission interruption takes place and some transmitted data is dropped, the header data is buffered and then re-transmitted on an additional, i.e., non-traffic, channel to the mobile station MS. The data sent via a traffic channel and the re-transmitted data from the non-traffic channel are reassembled before inputting into the decompressor.

Chen does not even mention the use of context information, much less any method of updating context information between the header compressor and the header decompressor as recited in claims 1 and 12. The synchronization process of Chen requires that full headers are transmitted/re-transmitted from the compressor to the decompressor.

Maggenti discloses a point-to-multipoint group communication system, wherein multimedia data is converted into suitable data packets in a communication device, which further distributes the data packets to the recipients. The Examiner refers to a single passage (col. 23, ll. 8 - 46), which discusses a CRTP header compression and how it is applied to RTP/UDP/IP headers.

Maggenti does not teach to use context information, nor mentions any method of updating context information between the header compressor and the header decompressor as recited in claims 1 and

12. In fact, Maggenti teaches (col. 23, ll. 31-33) that header fields that remain constant over the life of the RTP session are sent once at the start of the session and never retransmitted again. On the other hand, Chen teaches to retransmit full header data in order to resynchronize the compressor and the decompressor. Due to these contradictory teachings, it is improper to combine the references, see Harsten Manufacturing Corp. v. Cleveland Golf Co., 58 USPQ2d 1286, 1293 (CAFC 2001); In re Ratti, 123 USPQ 349, 352 (CCPA 1959); MPEP 2143.01, sect. VI. However, even if somehow combined, both references teach using full headers; neither of them teaches to update only the context information. The drawbacks (being disruptive and requiring a large bandwith) of using full headers are discussed in the background of the current application (p. 3, ll. 3 - 10).

The primary argument of the Examiner is that, even though neither Chen nor Maggenti disclose the concept of "context information", the Examiner considers it merely a flag indicating the compression state, and the use of a flag is obvious for a skilled man. The Examiner further argues that since Maggenti discloses ending transmission of headers (header sent only once) and Chen discloses retransmission of headers, the claimed invention becomes obvious.

First, "context information" is not a flag indicating the compression state, but it comprises various static and dynamic data defining the operation of the compressor and the decompressor, which is disclosed, e.g., on p. 6, lines 9 - 20, of the present application. As admitted by the Examiner, Chen does not mention the use of context information. Therefore, Chen does

not teach any method of updating context information between the header compressor and the header decompressor. Second, as explained above, Maggenti does not disclose using context information, or updating it between the header compressor and decompressor.

Accordingly, even a combination of Chen and Maggenti would not teach a skilled man to first stop the context information updating in the mobile terminal in the first network entity, and then take a snapshot of the old compressor and the decompressor context information and delivered to the new network entity as recited in claims 1 and 12.

In summary, since the references have contradictory teachings, they cannot be combined. Even if they are somehow combined, the result is not the present invention since the claimed "…stopping the context information updating… taking a snapshot of the compression and decompression context… transferring the context information snapshot… to the second network entity… and using the… context information for compression and decompression of the headers…" of claim 1 would be missing. Claim 12 has similar limitations.

(b) Claims 2 and 13

These claims recite that the stopping of the context information updating is done by disabling the sending of acknowledgments. The Examiner conceeds on page 4 of the final rejection that Chen fails to disclose this. However, he cites Maggenti (column 23, lines 8-46) for sending the header only once if it remains constant. But the cited portion says nothing about sending

acknowledgments, let alone stopping their sending. Thus even if the references are combined, the result is not the invention of claims 2 and 13. For this additional reason, these claims are patentable.

(c) Claims 3 and 14

These claims recite that context updating is stopped by stopping the mobile terminal and first network entity compression and transmission. The Examiner conceeds on page 6 that this is not shown in Chen, but states that this feature is in Maggenti since it discloses sending the header only once if it remains constant (column 23, lines 8-46). Again the claimed feature is not disclosed in Maggneti since there is no disclosure of stopping both the mobile terminal and the first network entity compression. Thus combining the references does not result in the invention of these claims. So for this additional reason, claims 3 and 14 are patentable.

(d) Claims 4 and 15

These claims recite delaying the taking of a snapshot until the data have been received and decompressed. The Examiner conceeds on page 6 that this is not shown in Chen, but cites Maggenti (column 23, lines 8-46) for sending the header only once if it remains constant. However, this feature is not disclosed there since there is no disclosure of delaying the decompression. Thus combining the references does not result in the invention of these claims. So for this additional reason, claims 4 and 15 are patentable.

(e) Claims 5 and 16

These claims recite that the context information updating is stopped by discarding acknowledgements from the mobile terminal. The Examiner conceeds on page 7 that Chen does not show this feature, but cites Maggenti (column 23, lines 8-46) for this feature since it discloses sending the header only once if it remains constant. In fact, Maggenti discloses nothing about the claimed feature since nothing is disclosed about acknowledgments. Transmitting something once and never again is not the same as discarding acknowledgments from the mobile terminal. Thus combining the references does not result in the invention of these claims. Thus claims 5 and 16 are additionally patentable for this reason.

(f) Claims 6 and 17

These claims recite that the context information updating is stopped by discarding acknowledgments to the mobile terminal. The Examiner conceeds on page 9, lines 1 and 2, that this is not in Chen. Again he cites Maggenti (column 23, lines 8-46) for this since it discloses sending the header only once if it remains constant. However, Maggenti disclosed nothing about the claimed feature since nothing is discloses about acknowledgments. Thus combining the references does not result in the invention of these claims. Thus claims 6 and 17 are additionally patentable for this reason.

(g) Claims 7 and 18

These claims recite the details of sending a context update request in response to a request for such. The Examiner conceeds (page 9, last line) that this feature is not in Chen. However,

he cites Maggenti (column 23, lines 8-46) for sending the header only once if it remains constant. However this disclosure is not the same as the claimed feature since nothing is said about context information let alone updating it or such a request. Thus combining the references does not result in the invention of these claims. For this additional reason, claims 7 and 18 are patentable.

(h) Claims 8 and 19

These claims also recite the details of sending a context update request in response to detecting out-of-synchronization. The Examiner conceeds (page 9, last line) that this feature is not in Chen. However, he cites Maggenti (column 23, lines 8-46) for sending the header only once if it remains constant. However this disclosure is not the same as the claimed feature since nothing is said about context information let alone updating it or such a request. Thus combining the references does not result in the invention of these claims. For this additional reason, claims 7 and 18 are patentable.

(i) Claims 9 and 20

These claims recite the details of transferring the context information snapshot before changing the connection. The Examiner conceeds on page 11 that this feature is not in Chen. However, he cites Maggenti (column 23, lines 8-46) for sending the header only once if it remains constant. However, this disclosure is not the same as the claimed feature since nothing is said about transferring a context information snapshot. Thus combining the references does not result in the invention of

these claims. For this additional reason, claims 9 and 20 are patentable.

(j) Claims 10 and 21

These claims recite the ROHC implemented in a UMTS system. The Examiner conceeds on page 12 that this feature is not in Chen. However, he cites Maggenti (column 23, lines 8-46) for sending the header only once if it remains constant. However, this disclosure is not the same as the claimed feature since nothing is said about ROHC or UMTS. Thus combining the references does not result in the invention of these claims. For this additional reason, claims 10 and 21 are patentable.

(k) Claim 11

This claim recites performing the relocation overlapping with serving radio subsystem relocation. The Examiner conceeds on page 13 that this feature is not in Chen. However, he cites Maggenti (column 23, lines 8-46) for sending the header only once if it remains constant. However, this disclosure is not the same as the claimed feature since nothing is said about ROHC or UMTS. Thus combining the references does not result in the invention of these claims. For this additional reason, claims 11 is patentable.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, a reversal of the rejection of claims 1-21 is respectfully requested.

A check in the amount of $500.00 is enclosed for the fee for this brief. The Commissioner is hereby authorized to charge payment for any fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,

Geza C. Ziegler, Jr. — 12 MAY 2006
Reg. No. 44,004 — Date

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(J) CLAIMS APPENDIX

1. A method of relocating the header compression context in a packet network which transmits packets having compressed headers, said method comprising:

establishing a connection between a mobile terminal and a first network entity including storing context information used with compression and decompression of the headers of the packets at the mobile terminal and the first network entity;

stopping the context information updating in the mobile terminal and in the first network entity;

taking a snapshot of the compression and decompression context information in the first network entity including storing said context information snapshot in the first network entity; and

changing the connection between the first network entity and the mobile terminal to a connection between the mobile terminal and a second network entity including transferring the context information snapshot stored by the first network entity to the second network entity which is stored by the second network entity as the context information of the second network entity and using the stored context information at the mobile terminal and the second network entity for compression and decompression of the headers of the packets.

2. A method in accordance with claim 1 wherein:

said context information updating is stopped by disabling the mobile terminal and the first network entity decompressors from sending acknowledgements to the compressor of the opposite side.

3. A method in accordance with claim 1 wherein:

said context information updating is stopped by stopping the mobile terminal to compress and transmit uplink data and stopping the first network entity to compress and transmit downlink data.

4. A method in accordance with claim 3 wherein:

said taking a snapshot of the compression and decompression context information in the first network entity is delayed until said transmitted uplink data and downlink data has been received and decompressed.

5. A method in accordance with claim 1 wherein:

said context information updating is stopped by discarding in the first network entity compression/ decompression acknowledgements from the mobile terminal.

6. A method in accordance with claim 1 wherein:

said context information updating is stopped by disabling in the first network entity to send compression/ decompression acknowledgements to the mobile terminal.

7. A method in accordance with claim 5 wherein:

sending a context update request from the first network entity to the second network entity, in response to a detection of a context update request sent by the mobile terminal in the first network entity; and

sending the first packet from the second network entity to the mobile terminal as a packet containing said context update request.

8. A method in accordance with claim 5 wherein:

sending a context update request from the first network entity to the second network entity, in response to a detection of out-of-synchronism of the context information in the first network entity; and

sending the first packet from the second network entity to the mobile terminal as a packet containing said context update request.

9. A method in accordance with claim 1 wherein:

transferring the context information snapshot stored by the first network entity to the second network entity before changing the connection between the first network entity and the mobile terminal to a connection between the mobile terminal and a second network entity.

10. A method in accordance with claim 1 wherein:

said method is used in accordance with Robust Header Compression (ROHC) implemented in a UMTS system.

11. A method in accordance with claim 10 wherein:

performing said relocation overlapping with serving radio network subsystem (SRNS) relocation.

12. A packet network in which packets having compressed headers are transmitted between a mobile terminal and network entities, said network comprising:

a connection is arranged to established between a mobile terminal and a first network entity;

context information used with compression and decompression of the headers of the packets is arranged to be stored at the mobile terminal and the first network entity;

the context information updating in the mobile terminal and in the first network entity is arranged to be stopped;

a snapshot of the compression and decompression context information is arranged to be taken at and stored in the first network entity;

the connection between the first network entity and the mobile terminal is arranged to be changed to a connection between the mobile terminal and a second network entity, whereby the context information snapshot stored by the first network entity is arranged to be transmitted to and stored in the second network entity as the context information of the second network entity; and

the stored context information at the mobile terminal and the second network entity is arranged to be used for compression and decompression of the headers of the packets.

13. A packet network in accordance with claim 12 wherein:

said context information updating is arranged to be stopped

by disabling the mobile terminal and the first network entity decompressors from sending acknowledgements to the compressor of the opposite side.

14. A packet network in accordance with claim 12 wherein:

said context information updating is arranged to be stopped by stopping the mobile terminal to compress and transmit uplink data and stopping the first network entity to compress and transmit downlink data.

15. A packet network in accordance with claim 14 wherein:

said taking a snapshot of the compression and decompression context information in the first network entity is arranged to be delayed until said transmitted uplink data and downlink data has been received and decompressed.

16. A packet network in accordance with claim 12 wherein:

said context information updating is arranged to be stopped by discarding in the first network entity compression/decompression acknowledgements from the mobile.

17. A packet network in accordance with claim 12 wherein:

said context information updating is arranged to be stopped by disabling in the first network entity to send compression/decompression acknowledgements to the mobile terminal.

18. A packet network in accordance with claim 16 wherein:

a context update request is arranged to be sent from the first network entity to the second network entity, in response to a detection of a context update request sent by the mobile terminal in the first network entity;

the first packet is arranged to be sent from the second network entity to the mobile terminal as a packet containing said context update request.

19. A packet network in accordance with claim 16 wherein:

a context update is arranged to be sent request from the first network entity to the second network entity, in response to a detection of out-of-synchronism of the context information in the first network entity; and

the first packet is arranged to be sent from the second network entity to the mobile terminal as a packet containing said context update request.

20. A packet network in accordance with claim 12 wherein:

the context information snapshot stored by the first network entity is arranged to be transferred to the second network entity before changing the connection between the first network entity and the mobile terminal to a connection between the mobile terminal and a second network entity.

21. A packet network in accordance with claim 12 wherein:

said packet network is a UMTS system, wherein Robust Header Compression (ROHC) is implemented.

(K) EVIDENCE APPENDIX

None

(L) RELATED PROCEEDINGS APPENDIX

None